

# **FOOL-PROOF MECHANISM FOR MEMORY CARD**

## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

**[0001]** The present invention relates to a fool-proof mechanism for memory card, and particularly to a fool-proof mechanism comprising an asymmetrically configured insertion end formed in a memory card for prevention of any incorrect insertion of the memory card into an associated card read/write device.

### **2. The Prior Arts**

**[0002]** In order to prevent a memory card, such as Multi Media Card, Smart Media Card, and Memory Stick Card, from being incorrectly inserted into an associated card read/write (R/W) device, a fool-proof mechanism is usually provided to the memory card. The fool-proof mechanism generally includes a removed chamfer or arc portion (or a recess) at a single corner of an insertion end of the memory card as well as a corresponding protruding portion (or a protrusion) on the mated R/W device.

**[0003]** However, such an arrangement is defective in some respects: an unsightly appearance; difficult to aim exactly and insert a card because of a single fool-proof mechanism; and no contact time difference available when jointing symmetrically flush aligned circuit's contacts with contact terminals. Thus, there are still rooms for improvements.

## **SUMMARY OF THE INVENTION**

**[0004]** A primary object of the present invention is to provide a fool-proof mechanism for memory card, in which a contact time difference between contacts of circuit's contacts with contact terminals is availed for design of specific circuits.

**[0005]** In order to realize foregoing object, an asymmetric insertion end is formed at the front edge of a memory card and more than a circuit's contact are asymmetrically aligned in arc or curve according to the configuration of the asymmetric insertion end so that a length difference between two sides of the memory card can be produced to avoid any reverse insertion of the asymmetric memory card. Moreover, a height difference between every two neighboring circuit contacts may be

created through the asymmetric arcuate or curved alignment of the circuit contacts such that a contact time difference between contacts of circuit's contacts with contact terminals is available for design of specific circuits.

**[0006]** In short, the merits of the present invention may be summarized as the following:

**[0007]** (1) A sightly appearance of the whole body is secured in addition to the fool-proof function.

**[0008]** (2) Insertion of the memory card into the R/W device is smoother than ever.

**[0009]** (3) A contact time difference between contacts of circuit's contacts with contact terminals is available for design of specific circuits.

**[0010]** (4) The conventional R/W device, which has a recess-and-protrusion style fool-proof mechanism, is remained usable.

**[0011]** (5) The asymmetric arcuate or curved configuration of insertion end or circuit's contact may be applied widely to memory card of different species, such as Multi Media Card, Smart Media Card, and Memory Stick Card.

**[0012]** For more detailed information regarding advantages or features of the present invention, at least an example of preferred embodiment will be described below with reference to the annexed drawings.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0013]** The related drawings in connection with the detailed description of the present invention to be made later are described briefly as follows, in which:

**[0014]** Figure 1 is an upward view of the present invention;

**[0015]** Figure 2A is an action view (I) of the present invention;

**[0016]** Figure 2B is another action view (II) of the present invention showing an erroneous demonstration;

**[0017]** Figure 2C is yet another action view (III) of the present invention;

**[0018]** Figure 3 is yet another action view (IV) of the present invention;

**[0019]** Figure 3A is a partially enlarged view of Figure 3;

**[0020]** Figure 4 shows an embodiment (a) of the present invention; and

**[0021]** Figure 5 shows another embodiment (b) of the present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

**[0022]** Figure 1 is an upward view of the present invention. As shown in Figure 1, in a fool-proof mechanism for memory card, an insertion end (11) at the front edge of a memory card (1) is formed substantially in an asymmetric arcuate or curved configuration, in which a preferred formation of the insertion end (11) is a smooth curve having a higher end at one side to go down gradually towards the other. Since more than a circuit's contact (12) (quantity thereof depending on the specifications and style of the memory card) are formed on a bottom face at the front edge of the memory card (1) and a height difference between two laterals of the memory card (1) is existed because of the asymmetric arcuate or curved configuration of the insertion end (11), incorrect insertion of the memory card (1) can thus be avoided. Besides, it is possible to create a contact time difference between contacts of any two circuit's contacts (12) with corresponding contact terminals (22) for application in design of specific circuits (see also Figure 3) by taking advantage of a height difference in a plurality of asymmetrically arc- or curve-aligned circuit's contacts (12).

**[0023]** Schematic views (I), (II), and (III) of the present invention are shown in Figures 2A through 2C. As illustrated in those drawings, an asymmetric arcuate or curved insertion end (11) at the front edge of a memory card (1) can be fully matched with a corresponding channel (21) of a Read/Write (R/W) device (2) for data reading. On the contrary, the memory card (1) could be disabled suppose the insertion end (11) is incorrectly inserted into the channel (21) of the R/W device (2) to result in an incomplete joint. In this manner, incorrect insertion of the memory card (1) can be avoided. By the way, the memory card (1) can perform data transfer or R/W operation as usual even when a conventional fool-proof mechanism is provided to the R/W device (2), if the arcuate or curved insertion end (11) of the memory card (1) is adopted (see Figure 2C).

**[0024]** As illustrated in Figures 3, 4, and 5, which show an action view (IV), an embodiment (a), and another embodiment (b) of the present invention, respectively, there are more than a circuit's contact (12) asymmetrically aligned in arc or curve at

the front edge of the memory card (1) according to the configuration of an insertion end (11), so that a length or height gradient of the circuit's contacts (12) is formed. At this moment when the insertion end (11) is pushed to joint with the channel (21) of the R/W device (2), a frontmost circuit's contact (12) is supposed to contact and lap-joint first with a corresponding contact terminal (22) of the R/W device (2) to provide an electrically conductive path (other circuit's contacts not yet in contact with respective corresponding contact terminals). The memory card (1) is then inserted farther to go deeper and deeper so that the rest circuit's contacts (12) will contact and lap-joint with respective contact terminals (22) one after another. By taking advantage of the length difference between neighboring circuit's contacts (12), a contact time difference could be produced for design of specific circuits (to set booting or linking the R/W device, or store data temporarily at the moment the memory card is removed, for example). Moreover, the circuit's contact (12) may be lengthened or formed in parallel if desired.

**[0025]** In the above described, at least one preferred embodiment has been described in detail with reference to the drawings annexed, and it is apparent that numerous changes or modifications may be made without departing from the true spirit and scope thereof, as set forth in the claims below.